



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,095	03/15/2004	Dieter Meller	LIP 039	9266
32047 7590 09/28/2007 GROSSMAN, TUCKER, PERREAULT & PFLEGER, PLLC 55 SOUTH COMMERICAL STREET MANCHESTER, NH 03101			EXAMINER LEE, GILBERT Y	
			ART UNIT 3673	PAPER NUMBER
			MAIL DATE 09/28/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/801,095	Applicant(s) MELLER ET AL.	
	Examiner Gilbert Y. Lee	Art Unit 3673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 September 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-7,9-11,14-23,25 and 26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-7,9-11,14-23,25 and 26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/6/07 has been entered.

### ***Specification***

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objections***

3. Claim 1 is objected to because of the following informalities: "a groove flank" in line 7 should be changed to --a supporting flank--. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 3673

4. Claims 1, 3-7, 9-11, 14-23, 25 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The preamble to claims 1, 3-7, 9-11, and 14-23 clearly claim the subcombination of a sealing arrangement. However, the body of the claims claims the combination of a two components and a sealing arrangement. The examiner is making an inquiry as to whether the applicant wishes to claim the combination or just the subcombination. For the purposes of this examination, the examiner is interpreting the claims be claiming just the subcombination of a sealing arrangement with the two components being merely intended use.

Claims 3-7, 9-11, and 14-23 are rejected for dependent on claim 1.

Claim 1 also recites "a groove flank" in line 7 and "a supporting flank" in line 10. It appears that the two are the same flank and should be amended accordingly.

Claims 3 and 4 are dependent on claim 2, which has been cancelled. For the purposes of this examination, the examiner is interpreting the claims to be dependent on claim 1.

Claim 11 recites "the sealing surface is designed as the surface of a cylinder." However, "the sealing surface" in claim 1 is referenced to be on the sealing ring itself. For the purposes of this examination, the examiner is interpreting that the sealing surface comes into contact with a cylinder.

Claim 19 recites "a first component" in line 2 and "a second component" in line 3. However, two components have been claimed in claim 1. Appropriate correction is required.

It is unclear to the examiner as to what is being claimed in claims 25 and 26. The preamble of an independent claim should comprise a general description of all the elements or steps of the claimed combination, which are conventional or known, a phrase such as "wherein the improvement comprises," and those elements, steps and/or relationships that constitute that portion of the claimed combination which the applicant considers as the new or improved portion. Both claims 25 and 26 begin with "A sealing arrangement with a sealing ring". It is unclear to the examiner as to whether the claims are claiming a sealing arrangement with a separate sealing ring or a sealing arrangement that comprises a sealing ring. For the purposes of this examination, the examiner is interpreting the claims to be claiming a sealing arrangement comprising a sealing ring with the two components being merely intended use.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 4-7, 9, 11, 14-23, and 26, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Abiko (WIPO Pub. No. WO 01/84024 A1).

Regarding claim 1, the Abiko reference discloses a sealing arrangement (Fig. 9) consisting essentially of a sealing ring (110), including a radially external sealing surface (e.g. surface of 110 in contact with 200), where, to one side of the sealing surface, the sealing ring displays a pressurizing surface (e.g. right surface of 110) to be pressurized and, on the opposite side, a supporting surface (e.g. left surface of 110),

wherein the sealing ring is divided almost completely or throughout in the radial direction at one point on its circumference (e.g. at T), forming a weaker area. Note that the seal of the Abiko reference is capable of being used in an environment as described in claim 1.

Regarding claim 4, the Abiko reference discloses that the area of the pressurizing surface and the supporting surface, with the form of a truncated cone follows on laterally, at least almost directly, from the sealing surface (Fig. 9).

Regarding claim 5, the Abiko reference discloses a surface (e.g. bottom surface of seal) being located between the pressurizing surface and the supporting surface, opposite to the sealing surface, which is a lateral surface of a truncated cone (Fig. 9).

Regarding claim 6, the Abiko reference discloses the radial thickness (e.g. thickness taken between bottom surface of the seal in Fig. 9a and the bottom dotted line) of the sealing ring being less than/equal to the extension of the sealing surface in the axial direction of the sealing ring (Fig. 9a).

Regarding claim 7, the Abiko reference discloses the pressurizing surface and the supporting surface being profiled (Fig. 9).

Regarding claim 9, the Abiko reference discloses the weaker area being designed as a complete division of the sealing ring (Fig. 9b), formed two opposite sealing ring ends, in that at least one, integrally molded area extending in the circumferential direction of the sealing ring being provided on each of the sealing ring ends, and in that the areas associated with different sealing ring ends being located one behind the other in the axial direction of the sealing ring, forming a labyrinth seal (Fig. 9b). Note that the ends of the sealing ring of the Abiko reference are capable of being in contact with each other in operating condition.

Regarding claim 11, the Abiko reference discloses the sealing surface (e.g. surface of 110 in contact with 200). Note that the sealing surface of the Abiko reference is capable of being in contact with a cylinder.

Regarding claims 14 and 16-23, the Abiko reference discloses the invention substantially as claimed in claim 1. Note that the sealing ring of the Abiko reference is capable of being used in the environment being claimed.

Regarding claim 15, the Abiko reference discloses the sealing ring projecting in a radial direction (Fig. 9). Note that the sealing ring of the Abiko reference is capable of being placed in a groove and projecting from the groove by less than one-third of its radial thickness.

Regarding claim 26, the Abiko reference discloses a sealing arrangement (Fig. 9) consisting essentially of a sealing ring (110), including a radially external sealing surface (e.g. surface of 110 in contact with 200), where, to one side of the sealing surface, the sealing ring displays a pressurizing surface (e.g. right surface of 110) to be pressurized

and, on the opposite side, a supporting surface (e.g. left surface of 110) and a transitional area (e.g. bottom surface of 110 in Fig. 9a closest to 301),

wherein the pressurizing surface and the supporting surface are inclined relative to the sealing surface and enclose an angle of less than 90° towards it (Fig. 9),

wherein the sealing ring is divided almost completely or throughout in the radial direction at one point on its circumference (e.g. at T), forming a weaker area,

wherein the pressurizing surface and the supporting surface each form a lateral surface (Fig. 9). Note that the seal of the Abiko reference is **capable of** being used in an environment as described in claim 26.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3 and 25, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Abiko.

Regarding claim 3, the Abiko reference discloses the invention substantially as claimed in claim 1.

However, the Abiko reference fails to explicitly disclose that the areas of the lateral surface of a truncated cone of the pressurizing surface or the supporting surface,



or of the pressurizing surface and the supporting surface, each enclose an angle of 30° to 60° with the sealing surface towards said sealing surface.

Discovering an optimum range of a result effective variable involves only routine skill in the art. Since applicant has not shown some unexpected result the inclusion of this limitation is considered to be a matter of choice in design. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the areas of the lateral surface of a truncated cone of the pressurizing surface or the supporting surface, or of the pressurizing surface and the supporting surface, each enclose an angle of 30° to 60° with the sealing surface towards said sealing surface as a matter of mechanical expedience.

Regarding claim 25, the Abiko reference discloses a sealing arrangement (Fig. 9) consisting essentially of a sealing ring (110), including a radially external sealing surface (e.g. surface of 110 in contact with 200), where, to one side of the sealing surface, the sealing ring displays a pressurizing surface (e.g. right surface of 110) to be pressurized and, on the opposite side, a supporting surface (e.g. left surface of 110),

wherein the sealing ring is divided almost completely or throughout in the radial direction at one point on its circumference (e.g. at T), forming a weaker area. Note that the seal of the Abiko reference is **capable of** being used in an environment as described in claim 1.

However, the Abiko reference fails to explicitly disclose that the areas of the lateral surface of a truncated cone of the pressurizing surface or the supporting surface,

or of the pressurizing surface and the supporting surface, each enclose an angle of 30° to 60° with the sealing surface towards said sealing surface.

Discovering an optimum range of a result effective variable involves only routine skill in the art. Since applicant has not shown some unexpected result the inclusion of this limitation is considered to be a matter of choice in design. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the areas of the lateral surface of a truncated cone of the pressurizing surface or the supporting surface, or of the pressurizing surface and the supporting surface, each enclose an angle of 30° to 60° with the sealing surface towards said sealing surface as a matter of mechanical expedience.

7. Claim 10, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Abiko in view of Flick (US Patent No. 2,970,871).

Regarding claim 10, the Abiko reference, discloses the invention substantially as claimed in claim 1, including the seal ring being made of rubber (Fig. 9).

However, the Abiko reference fails to explicitly disclose the material of the seal ring consisting of a plastic with an elongation at break at room temperature of  $\leq 50$  percent.

The Flick reference, a piston ring, discloses that seals maybe made of rubber, synthetic rubber, or PTFE (Col. 3, Lines 42-48).

It would have been obvious at the time the invention was made to provide the seal ring of the Abiko reference with PTFE in view of the teachings of the Flick reference to provide a material having a desired hardness.

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1, 3-7, 9-11, 14-23, 25 and 26 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gilbert Y. Lee whose telephone number is 571-272-5894. The examiner can normally be reached on 8:00 - 4:30, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patricia L. Engle can be reached on (571)272-6660. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3673

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GL

September 26, 2007



Patricia Engle  
Supervisory Examiner  
Tech. Center 3600